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Not social transition status, but peer relations and family functioning predict psychological functioning in a German clinical sample of children with Gender Dysphoria

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Abstract

Research provides inconclusive results on whether a social gender transition (e.g. name, pronoun, and clothing changes) benefits transgender children or children with a Gender Dysphoria (GD) diagnosis. This study examined the relationship between social transition status and psychological functioning outcomes in a clinical sample of children with a GD diagnosis. Psychological functioning (Child Behavior Checklist; CBCL), the degree of a social transition, general family functioning (GFF), and poor peer relations (PPR) were assessed via parental reports of 54 children (range 5–11 years) from the Hamburg Gender Identity Service (GIS). A multiple linear regression analysis examined the impact of the social transition status on psychological functioning, controlled for gender, age, socioeconomic status (SES), PPR and GFF. Parents reported significantly higher scores for all CBCL scales in comparison to the German age-equivalent norm population. Peer problems and worse family functioning were significantly associated with impaired psychological functioning, whilst the degree of social transition did not significantly predict the outcome. Therefore, claims that gender affirmation through transitioning socially is beneficial for children with GD could not be supported from the present results. Instead, the study highlights the importance of individual social support provided by peers and family, independent of exploring additional possibilities of gender transition during counseling.

Keywords

Gender dysphoria, transgender, peer support, family acceptance, social transition, gender affirmation,social support

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Introduction

Children with a Gender Dysphoria (GD) diagnosis experience an incongruence between their birth-assigned sex and their experienced gender with which they identify (also referred to as Gender Incongruence or Transgender). The clinical condition is referred to as *Gender Dysphoria* in the DSM 5 (American Psychiatric Association, 2013). Gender Identity Services around the world are facing the challenge to provide optimal treatment for individuals and their families to promote psychological well-being. While pubertal transgender adolescents with a GD diagnosis are eligible for puberty suppressing and gender affirming hormonal medication to medically support a gender transition, prepubescent children are not advised to receive any medical treatment before the onset of puberty (Tanner stage 2; Coleman et al., 2012). However, they often transition socially from one gender to another during childhood (Coleman et al., 2012). This reversible non-medical step towards a life in the identified gender may include changing one's name or pronoun, being introduced as the experienced gender in public, as well as gender typical appearance in terms of e.g., hair length and clothing (Steensma et al., 2013; Wong et al., 2019).

Social transition is often the first possibility to align with one's experienced gender and to living in the preferred gender role different from the one assigned at birth in almost all aspects of life (gender affirmation). If the wish to transition persists, this can be followed by medical, surgical and legal procedures during adolescence and adulthood (Coleman et al., 2012; Ehrensaft et al., 2018; Hill et al., 2010). Some clinicians consider a social transition as a necessary precondition for puberty suppressing or gender affirming hormonal therapy, and therefore as a first step towards an affirmation of a child's gender identity (Hill et al., 2010). However, according to the World Professional Association for Transgender Health (WPATH) Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People (SoC 7; Coleman et al., 2012), vice versa a puberty suppression does not always or inevitably lead to social transition or to gender affirmation.

To this date, the possible benefits or disadvantages of an "early" social transition for a child's future development are among the most controversially discussed topics in Transgender Health Care (Coleman et al., 2012; Giordano, 2019; Steensma & Cohen-Kettenis, 2015; Wong et al., 2019); especially bearing in mind the developmental trajectories of persistence versus desistence into adolescence and adulthood (Ristori & Steensma, 2016). Children with either a GD diagnosis or so-called gender nonconforming or gender variant experiences often do not continue to experience a clinical GD as adolescents and adults (Ristori & Steensma, 2016; Steensma et al., 2013). This developmental pathway is referred to as a desisting GD ("desisters"), in contrast to "persisters," whose GD continues to persist into adolescence and adulthood (Steensma et al., 2011). This research has been criticized for including gender variant children despite not meeting the diagnostic criteria for a GD (Giordano, 2019; Temple Newhook et al., 2018). Furthermore, it has been argued that the number of desisters has been overestimated due to the timing of follow-up (Ehrensaft et al., 2018; Giordano, 2019). In a response to these critiques, Steensma and Cohen-Kettenis (2018) have subsequently described limitations and also highlighted the possibilities for more than these two developmental pathways of either persisting or desisting. Hence, the actual percentages of desistence and persistence remain uncertain, and so does the degree to which clinicians support a social transition in childhood.

In the general population, gender experiences may appear more fluctuating during childhood: according to a Germany study on high-school students, a relatively higher degree of younger adolescents (around the age of 11) presented gender variant experiences compared to older adolescents (around the age of 15), and compared to clearly incongruent gender experiences (Becker et al., 2017). Because of such possible fluctuations in gender experience during childhood and the assumed relatively lower persistence of GD from childhood into adolescence, many researchers and clinicians have suggested to follow a so-called "supportive watchful-waiting" approach (e.g. Cohen-Kettenis et al., 2008; Steensma et al., 2013). This approach refers to providing a safe place for children to explore their gender, but advises to withhold complete social transitions until puberty. For example, de Vries and Cohen-Kettenis (2012) recommended for young children to not yet make a complete social transition before the very early stages of puberty. In contrast to this clinical management, a more gender affirmative approach freely endorses social transitions when they are perceived as appropriate (Ehrensaft et al., 2018; Giordano, 2019).

There are experts arguing, that an affirmation of the gender status and support of a complete social transition during childhood and adolescence may be associated with better psychosocial health (Durwood et al., 2017; Ehrensaft et al., 2018; Olson et al., 2016). Durwood et al. (2017) and Olson et al. (2016) reported relatively low levels of depression, anxiety and better self-worth in community samples of 63 young adolescents (9–14 years) and of 73 children (3–12 years) who had already undergone a complete social transition, and thus were supported in their experienced gender by parents. These findings were underlined in another community-based sample, where children with a GD diagnosis who had fully completed a social transition scored within the norm range for behavioral and emotional problems (Kuvalanka et al., 2017).

In contrast to the US-American studies from Durwood et al. (2017), Olson et al. (2016) and Wong et al. (2019), most clinical European studies report higher levels of psychological problems in clinical samples of both children and adolescents with a GD diagnosis (e.g. Cohen-Kettenis et al., 2003; de Vries et al., 2016; Steensma et al., 2013, 2014). On average, these populations of children presented more behavioral and emotional problems than their siblings and other control groups on parent- and teacher report questionnaires, assessed via the Child Behavior Checklist (CBCL Achenbach, 1991). These clinical studies indicated that children with GD are more likely to experience internalizing problems, such as anxiety and depression, than externalizing problems (Cohen-Kettenis et al., 2003; Steensma et al., 2014). Similarly, a Canadian community-based sample among gender-nonconforming children aged 6–12 years found impaired psychological functioning comparable to the results reported in clinical studies (Van der Miesen et al., 2018).

At the same time, however, most of this previous clinical research from Europe has not explored the possible role of the social transition status for psychological functioning outcomes. Nowadays, the two main explanations for elevated vulnerability and distress within this group are the state of conflict between one's self-understanding of one's gender and physical appearance on the one hand (Aitken et al., 2016), and lacking social support or poor peer relations (PPR) on the other hand (Aitken et al., 2016; Cohen-Kettenis et al., 2003; de Vries et al., 2016; Levitan et al., 2019; Steensma et al., 2014). Considering that gender nonconforming behavior is often evaluated negatively by peers, children with a GD diagnosis often experience a lack of social support from their peers or PPR, which in turn is associated with poorer psychological functioning. Family support or good general family functioning (GFF) levels on the contrary, may act as a protective factor against such health risks in youth with a GD diagnosis (Levitan et al., 2019; Simons et al., 2013). For example, in a population of 66 American adolescent transgender youth, parental support was significantly associated with higher life satisfaction, lower perceived burden related to being transgender and fewer depressive symptoms (Simons et al., 2013).

The aforementioned studies from Durwood et al. (2017) and Olson et al. (2016) indicate that internalizing problems, such as depression, were less present than previously assumed when children with a GD diagnosis had undergone a social transition. These findings suggest a positive association between family support, particularly in terms of affirming one's child wish to transition, and better psychological functioning outcomes. Yet, the comparison of depression and anxiety measures in the statistical model among participants and controls in the study by Olson et al.

(2016) did not justify the conclusion that a social transition was directly linked to better psychological functioning outcomes. In contrast, the comparison of psychological functioning in socially transitioned children versus cisgendered gender-variant children by Wong et al. (2019) provide evidence for similar levels of behavioral problems regardless of their transition status. This study assessed different online assessed community samples of gender-variant children and highlights the importance of peer relationships for psychological well-being, instead of the social transition status or the degree of parental acceptance towards a child's gender experience. Hence, it remains unsolved whether the results of Durwood et al. (2017) and Olson et al. (2016) can be transferred to other samples, other families with different social transitioning pathways and support, and whether it is social transition status per se that explains the differences in psychological functioning.

Aim of the study and research questions

There is currently a lack of evidence in how far and to which degree a social transition during childhood impacts psychological functioning among children with a GD diagnosis. Previous studies have resulted in inconclusive results regarding the effects of support and the status of transitioning socially on psychological functioning outcomes. Thus, the present study examines two main research objectives: Firstly, psychological functioning of children diagnosed with GD in a clinical sample from Germany will be assessed. Secondly, the impact of transitioning socially on psychological functioning as an outcome will be examined, while controlling for age, gender, SES, PPR, and GFF.

Method

Procedure

The present study was conducted using a cross-sectional, questionnaire-based design. Data collection took place between September 2013 and December 2018 at the Hamburg Gender Identity Service for Children and Adolescents (Hamburg GIS) via parental reports of clinically referred children. All families that attended the Hamburg GIS during the aforementioned period were kindly invited to voluntarily complete a set of self- and parent-report questionnaires during their first appointment (see Figure 1). Hence, all data collection was conducted before undergoing any form of counseling or treatment. The study was granted approval by the local ethical committee. Written informed consent was collected from every study participant according to institutional guidelines.

Clinical protocol at the Hamburg GIS

The Hamburg GIS for Children and Adolescents at the University Medical Center Hamburg-Eppendorf was founded in 2006 (Möller et al., 2014). All treatment performed at the clinic comply to the international guidelines for the SoC 7 released by the World Professional Association for Transgender Health (WPATH) in 2012 by Coleman et al. (2012). Clinicians follow a diagnostic and treatment protocol that was developed and in the past referred to as the "Dutch Model" (Cohen-Kettenis et al., 2011; Delemarre-van de Waal & Cohen-Kettenis, 2006; de Vries & Cohen-Kettenis, 2012). This clinical management approach suggests a watchful-waiting approach which differentiates counseling in contrast to a more gender affirmative treatment approach during adolescence (Cohen-Kettenis et al., 2008; Edwards-Leeper, 2016; Giordano, 2019). Sessions may include clinical diagnostics, counseling, psychotherapy and psychoeducation during childhood, as well as the possibility of referral to an endocrinology specialist for medical interventions after the onset of

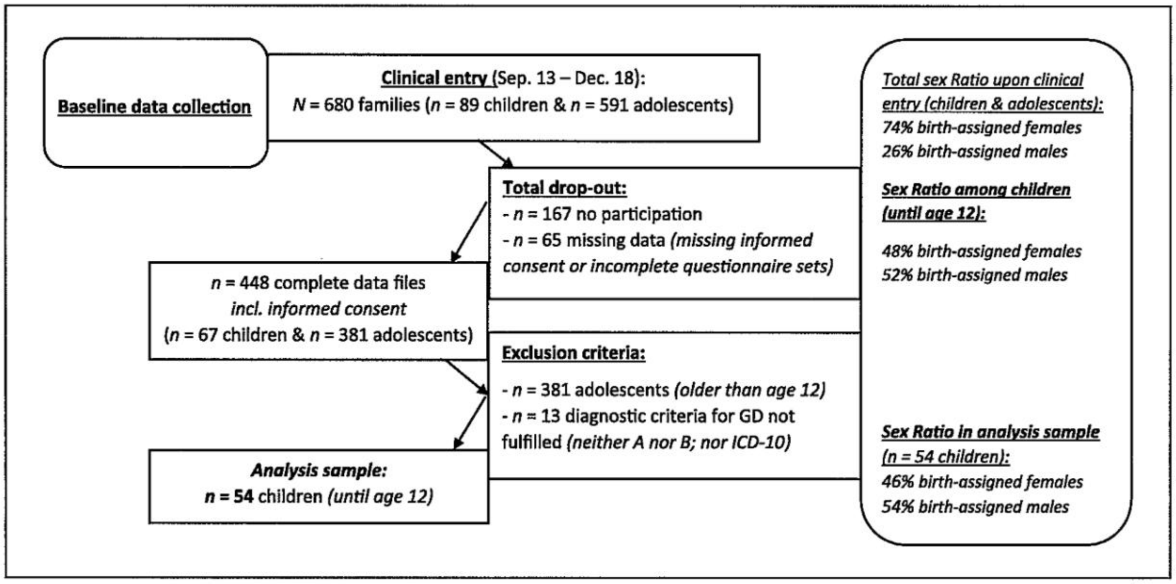
Baseline data collection
Clinical entry (Sep. 13 – Dec. 18):
N = 680 families (n = 89 children & n = 591 adolescents)
Total drop-out:
- n = 167 no participation
- n = 65 missing data (missing informed consent or incomplete questionnaire sets)
n = 448 complete data files incl. informed consent (n = 67 children & n = 381 adolescents)
Exclusion criteria:
- n = 381 adolescents (older than age 12)
- n = 13 diagnostic criteria for GD not fulfilled (neither A nor B; nor ICD-10)
Analysis sample: n = 54 children (until age 12)
Total sex Ratio upon clinical entry (children & adolescents):
74% birth-assigned females
26% birth-assigned males
Sex Ratio among children (until age 12):
48% birth-assigned females
52% birth-assigned males
Sex Ratio in analysis sample (n = 54 children):
46% birth-assigned females
54% birth-assigned males

Figure 1. Participants and sex ratios at clinical entry (children and adolescents) and in analysis sample (children only).

puberty. After a comprehensive diagnostic and psychological evaluation over multiple sessions, medical interventions are currently recommended in Hamburg if GD during adolescence is persistent (without strict onset criteria) and accompanied by distress, if adolescents present the ability to consider and anticipate treatment options as well as possible consequences of a life in the preferred gender role. The psychosocial treatment modalities are based on a psychodynamic and developmental perspective and similar to a supportive watchful-waiting approach. This means that steps of social transition during childhood are supported in individual cases, when the family is open to such a step and if a child clearly expresses the desire to proceed to live in their experienced gender. Decisions are never being made by a clinician alone, but in line with current SoC7, where clinicians, children and parents identify the best individual pathway together (informed consent), and in relation to the personal social circumstances (Coleman et al., 2012). Psychotherapy offered include psychodynamic individual and family sessions with a frequency tailored to the child's individual needs.

Participants

This study was targeted towards clinically referred children under the age of 12 living in Germany and fulfilling the diagnostic criteria for GD according to the DSM 5 (American Psychiatric Association, 2013) and/or the ICD-10 (World Health Organization, 1992). During their first appointment, all families with initial visits to the clinic were invited to complete a set of questionnaires (see Figure 1). In total, 680 families and their children aged 5 to 18 visited the clinic during this period, with 74% of them being assigned female at birth (AFAB) and 26% being assigned male at birth (AMAB; cf. Levitan et al., 2019). Information was obtained upon clinical entry from parents, adolescents (aged 11 and above) as well as from clinicians. As this study aims to evaluate the situation of children under the age of 12, adolescent participants (12 years and older) were excluded from the present analysis. Thus, a distinction between children and adolescents was made based on age in this study (rather than on puberty status). In addition, $n = 13$ children had to be excluded because they did not fulfil any diagnostic criteria for GD according to either the DSM 5 or the ICD-10. Therefore, parental reports of $n = 54$ (46% AFAB and 54% AMAB) children up to and including the age of 11 were included in the present analysis.

Measures

Sociodemographic variables

To describe the sample, the following sociodemographic measures were evaluated: birth-assigned sex, age at clinical entry (age at assessment), nationality, and the socioeconomic status (SES). To measure the SES based on the Winkler-Index (Winkler & Stolzenberg, 1999), education, income, and job position of both parents were included (similar to a previous study; cf. Levitan et al., 2019). Educational background of the parent with the higher status was coded as 1 (no or lower education), 2 (middle or technical school) and 3 (higher education or university). The household income was coded as 1 (less than 2.000€ per month), 2 (2.000–4.000€ per month) and 3 (more than 4.000€ per month). The job position of the parent with the higher status was coded as 1 (lower occupation or unemployed), 2 (skilled occupation or self-employed) and 3 (executive or academic occupation). Eventually, the score for the SES was the sum score of these three 3-point variables, therefore the SES ranged from 3 to 9.

Social transition status

The degree to which a child had transitioned socially was assessed via three items asking whether they lived in their preferred gender role in the following three everyday life areas: at home/with family, with friends/peers, and at school. Taking into consideration that multiple answers were possible, the final variable was summed up and then recoded as 1 (no social transition, yet, and living in birth-assigned gender role); 2 (partial social transition in at least 1 out of 3 life areas or in-between gender roles); 3 (almost complete social transition, living in the new gender role in at least 2 out of 3 life areas); 4 (complete social transition in all life areas). This measure was introduced in a previous study from Levitan et al. (2019) and allows for a more nuanced assessment of possible variance within the steps or the status of transitioning socially in multiple life domains (before undergoing any kind of transition-related medical intervention). In addition, parents were asked on a scale from 1 (not at all) to 5 (completely) in how far they supported their child's current gender role or social transition.

Psychological Functioning

Parents completed the German version of the Child Behavior Checklist (CBCL) for children and adolescents (ranging between 4 to 18 years of age; Achenbach et al., 1991; Döpfner et al., 1998) to measure behavioral and emotional problems. The original version of the CBCL consists of 113 items. Responses are rated on a 3-point scale ranging from 0 (not true) to 2 (very true or often true), with a higher score indicating a greater degree of the interrogated problems.

The CBCL provides a Total Problem Score which reflects the sum of problems and two main scales that allow to separate Internalizing and Externalizing problems. The Internalizing scale consists of items assessing anxiety and depression, somatic complaints and withdrawal problems. The Externalizing scale consists of items assessing externalizing problems, such as aggressive and rule breaking behavior. Scores above the 90th percentile or *T*-scores above 63 indicate clinically relevant problems. Birth-assigned sex-specific *T*-scores for all three scales of the German norm population (aged 4–11; Döpfner et al., 1998) allow to determine whether the scores of the transgender sample lie within the German birth-assigned sex- and age-equivalent norm range.

Four items were not included in the Total Problem Score according to the manual and in order to avoid conflation due to extreme scores: two health-related items ("allergies" and "asthma"), and two items regarding cross-gender identification (item 5: "behaves like the opposite sex"; item 110: "wishes to be the other sex"). Additionally, if the answer given to item 85 ("has strange thoughts or ideas") had a reference to the child's gender identity or GD, the item was excluded from the Total Problem Score. In the present sample, Cronbach's alpha for the Internalizing, Externalizing and Total Problem scales ranged between $\alpha = 0.90$ and 0.98, respectively.

Poor Peer Relations (PPR)

Three items from the CBCL were used to create an index for problematic social interactions with peers, items 25 ("doesn't get along with other kids"), 38 ("gets teased a lot") and 48 ("is not liked by other kids"). This measure has been extensively used in previous research to assess the quality of peer relations of children and adolescents referred for GD (e.g. Aitken et al., 2016; Cohen-Kettenis et al., 2003; de Vries et al., 2016; Kuvalanka et al., 2017; Levitan et al., 2019). The answer range was between 0 and 6, with a greater score indicating higher degrees of peer related problems or more problematic peer interactions. Cronbach's alpha for the PPR in the present sample was $\alpha = .73$.

General Family Functioning (GFF)

Based on the McMasters' Model of Family Functioning, the Family Assessment Device (MFAD; Epstein et al., 1983) is an instrument designed to evaluate several aspects of family relationships. The seventh and so-called General Family Functioning Scale (GFF) evaluates family functioning in terms of how far family members feel supported by one another and feel like they can rely on each other. It consists of 12 items on a 4-point Likert-scale with response options from 1 ("strongly agree") to 4 ("strongly disagree"). The sum of values is divided by the number of items, so that the total score ranges from 1 to 4. A higher score on the GFF reflects higher levels of problematic family functioning or lower perceived family support. The cut-off for problematic family functioning is set at 2.17 (Byles et al., 1988). In the present sample, Cronbach's alpha for the GFF scale was $\alpha = .68$.

Statistical analysis

Missing values were replaced using the expectation-maximization (EM) algorithm method in cases where less than 20% of the items per scale and per participant were missing at random (Little & Rubin, 2014).

To identify characteristics of the population, *mean scores (M)* and *standard deviations (SD)*, as well as frequencies for the sociodemographic variables were assessed and possible gender group differences between AFAB and AMAB children were explored using independent samples *t*-tests.

To be able to compare psychological functioning scores of our sample with the German-age equivalent population-based norm, *T*-scores provided by Döpfner et al. (1998; $M = 50$, $SD = 10$) were assigned to the raw scores of the CBCL scales (Internalizing, Externalizing and Total Problem Score). Furthermore, *95%-confidence intervals* for the three scales were calculated. If confidence intervals do not include the mean of the norm *T*-distribution ($M = 50$), it can be assumed that they significantly differ from the birth-assigned sex and age equivalent reference group (Cumming & Finch, 2005).

Table 1. Sociodemographic and clinical characteristics.

	AFAB ($n=25$)		AMAB ($n=29$)		Total ($n=54$)		Group comparisons			
	M	*SD*	*M*	*SD*	*M*	*SD*	*t*	*df*	*p*	*d*
Age	9.98	1.53	8.25	2.17	9.05	2.08	3.321	52	.002**	0.93
SES mean score[a]	6.63	1.55	6.51	1.34	6.56	1.43	0.299	52	.766	0.08
Poor peer relations (PPR)[b]	0.94	1.18	1.03	1.50	0.99	1.35	−0.266	52	.791	0.07
General family functioning (GFF)[c]	1.46	0.30	1.48	0.41	1.47	0.36	−0.182	52	.856	0.06
Social transition status[d]	2.58	1.32	2.61	1.26	2.60	1.27	−0.088	52	.930	0.02

Note. AFAB = assigned female at birth; AMAB = assigned male at birth.
[a] Range 3–9 (sum score based on parent's educational background, household income, and parental job position; a higher score reflects a higher SES).
[b] Range 0–6 (sum score of CBCL items 25, 38, and 48; a higher score reflects higher levels of peer related problems).
[c] Range 1 (better family functioning)–4 (higher levels of problematic family functioning).
[d] Range 1 (no social transition)–4 (complete social transition in all life areas).
**$p < .01$.

The second research question was performed using a multiple linear regression analysis. The raw score of the CBCL Total Problem Score was chosen as an outcome to assess possible predictors for overall psychological functioning. A modified version of the Total Problem score excluded one of the predictors in the model, the PPR scale (items 25, 38, and 48). In the first step of the regression analysis, the sociodemographic variables age, birth-assigned sex and SES were entered into the model as control variables. Afterwards, the variables assessing the degrees of PPR and GFF were included. Subsequently, the effect of social transition status on the outcome was determined by adding this variable into the model. In a multiple regression with $n=54$ cases and six predictors, an average effect ($f = 0.15$) can be tested with a power of 88% (calculated with GPower). In addition, a second and third exploratory data analysis were conducted to assess the impact of the six predictors of the main regression analysis on the Internalizing and Externalizing scales, seperately. All data analyses were conducted using SPSS 25.

Results

Results of the clinical and sociodemographic characteristics are provided in Table 1. AFAB were on average older ($M = 9.98$, $SD = 1.53$) at the time of the first clinical referral than AMAB ($M = 8.25$, $SD = 2.17$). This difference was statistically significant, but no other gender differences were found.

Most children came from a family with a middle (50%) or high (48%) socioeconomic background. Around 96% of the sample were German citizens. 70% of the children with GD had undergone a social transition in at least one life area and 39% had undergone a complete social transition (lived in their preferred gender role in all life areas). Parental support of the social transition was generally high (with 87% of parents supporting their child's current gender role or social transition completely). GFF reported by the parents was above the cut-off or within the healthy range for 96% of the sample according to the cut-off provided by Byles et al. (1988); thus only 4% of the sample presented problematic GFF scores. 43% of the parents reported problematic peer interactions for their children in at least one domain of PPR. For both items 25 ("doesn't get along with other kids") and 38 ("gets teased a lot"), more than a third (31 and 32%, respectively) of the parents reported PPR for their children sometimes or often.

Table 2. Psychological Functioning Compared to German Norm.

CBCL scales	*T*-scores (children with GD with reference to the German norm)		
	M	*SD*	95% CI of the *M*
Internalizing scale (31 items)			
AFAB	60.68	10.20	[56.47; 64.89]
AMAB	59.17	12.80	[54.30; 64.04]
Total	59.87	11.59	[56.71; 63.03]
Externalizing scale (33 items)			
AFAB	55.60	14.57	[49.57; 61.61]
AMAB	55.86	9.34	[52.31; 59.42]
Total	55.74	11.93	[52.49; 59.00]
Total problem score (109 items)			
AFAB	59.20	12.26	[54.14; 64.26]
AMAB	59.52	10.68	[55.45; 63.58]
Total	59.37	11.33	[56.28; 62.46]

Note. AFAB = assigned female at birth; AMAB = assigned male at birth.
Age and birth-assigned sex equivalent German norm *T*-scores with $M = 50$, $SD = 10$ derived from Döpfner et al. (1998).

Psychological functioning in comparison to the German norm

An overview of the raw scores and *T*-scores for the three CBCL scales is presented in Table 2. Significant deviations from the norm population measured in *T*-Scores ($M = 50$, $SD = 10$) could be found via non-overlapping 95% confidence intervals for all groups, except for externalizing problems among AFAB.

In general, internalizing problems were more strongly elevated in all groups compared to externalizing problems. Both AFAB and AMAB presented scores for internalizing problems around one standard deviation higher than their age-equivalent German norm group. Internalizing problems within the clinical range (> 90th percentile; *T*-scores > 63) were reported by 46% of the sample.

Both AMAB and AFAB also showed elevated scores for externalizing problems (around half a standard deviation above the norm mean), although AFAB were closer to the norm range. 40% of AMAB' parents reported clinically relevant scores, whereas only 28% of AFAB' parents reported the same.

The Total Problem Score for overall psychological functioning was significantly elevated in both groups in comparison to the German norm: 39% of the sample scored above the clinical range. Post-hoc *t*-tests confirmed the significant results of the non-overlapping 95%-confidence intervals for almost all scales, thus confirming that *T*-scores in this sample significantly differed from the norm, except for externalizing problems in AFAB.

Predictors of psychological functioning

The results of the regression analysis are reported in Table 3. An overview of the correlations for predictor variables in the regression analyses can be found in Table 4.

The results of the first model indicate that the three control variables birth-assigned sex, age and SES explained in total 11.1% of the variance. The SES significantly predicted psychological functioning, whereas birth-assigned sex and age did not. In the second model, birth-assigned sex, age, SES, PPR, and GFF in total explained 63.2% of the variance. It was found that both PPR and GFF

Table 3. Linear regression analysis for variables predicting psychological functioning (CBCL total problem score).

Variable	Model 1						Model 2						Model 3					
	B	*SE B*	95% CI *B*	*β*	*t*	*p*	*B*	*SE B*	95% CI *B*	*β*	*t*	*p*	*B*	*SE B*	95% CI *B*	*β*	*t*	*p*
Intercept	39.53	22.30	[−5.27; 84.32]		1.772	.082	7.60	15.43	[−23.43; 38.63]		0.492	.625	−0.98	15.97	[−33.10; 31.15]		−0.061	.951
Birth-assigned sex[a]	4.75	6.67	[−8.65; 18.16]	.102	0.713	.479	−0.86	4.39	[−9.60; 7.88]	−.018	−0.197	.844	−0.63	4.27	[−9.21; 7.96]	−.013	0.250	.804
Age	2.74	1.62	[−0.51; 5.99]	.242	1.695	.096	0.10	1.09	[−2.09; 2.29]	.009	0.090	.929	0.27	1.07	[−1.89; 2.43]	.024	−0.147	.884
SES	−5.38	2.13	[−9.67; −1.10]	−.327	−2.522	.015*	−2.24	1.48	[−5.15; 0.67]	−.136	−1.549	.128	−1.92	1.43	[−4.80; .97]	−.117	−1.337	.188
Poor peer relations (PPR)							11.01	1.64	[7.72; 14.30]	.631	6.728	.000***	11.53	1.64	[8.24; 14.82]	.661	7.052	.000***
General family functioning (GFF)							18.56	5.85	[6.81; 30.31]	.284	3.175	.003**	16.79	5.83	[5.06; 28.52]	.257	2.879	.006**
Social transition status													2.64	1.56	[−0.50; 5.78]	.143	1.692	.097
Adjusted R^2	0.111						0.632						0.646					
F	1.97*						8.71						7.26					
Sig. (*p*)	.031*						.000***						.000***					

Note. [a]Dummy-coded (0 = AFAB; 1 = AMAB).
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 4. Correlation matrix of variables for regression analyses.

Variable	2.	3.	4.	5.	6.	7.	8.	9.
1. Age	−0.418**	−0.018	−0.199	0.214	−0.089	0.205	0.225	0.191
2. Birth-assigned sex		−0.041	0.037	0.025	0.012	0.014	−0.033	0.014
3. SES			−0.308*	−0.019	−0.075	−0.336*	−0.288*	−0.251
4. Poor peer relations (PPR)				0.310*	−0.128	0.763**	0.669**	0.616**
5. General family functioning (GFF)					0.105	0.484**	0.362**	0.473**
6. Social transition status						0.508	0.134	0.047
7. Total problem score							0.796**	0.856**
8. Internalizing problems								0.419*
9. Externalizing problems								

Note. *$p<.05$. **$p<.01$.

significantly predicted psychological functioning, but the control variables did not. In the third model, however, the social transition status variable did not significantly explain additional variance, and thus psychological functioning outcomes. The results of the final third model indicate that the six predictors together explained 64.6% of the variance.

The value for the Durbin-Watson statistic was 1.751. With the assumption that a value of 2 is an indicator for perfect independence, no autocorrelations in the residua were expected. The variance inflation factor (VIF) in all three models was not substantially greater than 1 (range between 1.003 and 1.343), therefore no multicollinearity was expected. Furthermore, the histogram of standardized residuals indicated that the data contained approximately normally distributed errors, as did the normal P-P plot of standardized residuals, which showed points that were not completely on the line, but close. Regarding homogeneity of variance and linearity, the scatterplot of standardized residuals showed that the data met these assumptions.

Exploratory data analysis

Exploratory data analysis was conducted to assess the impact of the six predictors of the main regression analysis on the Internalizing and Externalizing CBCL scales as an outcome. For the Internalizing scale, it was found that only SES ($\beta = -.282, p = .037$) and PPR ($\beta = .614, p = .000$) significantly predicted internalizing problems. For the Externalizing scale, it was found that only PPR ($\beta = .500$, $p = .000$) and GFF ($\beta = .302$, $p = .012$) significantly predicted externalizing problems.

Additionally, to investigate potential effect modifiers, interaction terms for all 15 possible combinations of the six predictor variables in the regression analysis were entered and excluded one by one the model. Only the interaction term of birth-assigned sex and GFF ($\beta = -.309, p = .032$) significantly predicted psychological functioning. For AMAB, lower GFF was reported when having higher behavioral problems. Interestingly, for AFAB, higher GFF was reported despite the presence of higher behavioral problems.

Discussion

The purpose of the present study was to describe psychological functioning and its association with the status of transitioning socially in clinically referred children with a GD diagnosis in Germany.

A significantly impaired psychological functioning compared to the same-aged German norm population was reported by parents on the CBCL. Especially internalizing problems were elevated in comparison to the German norm, similar to most previous research reporting more internalizing than externalizing problems for youth with GD (Cohen-Kettenis et al., 2003; de Vries et al., 2016; Steensma et al., 2014). Both AMAB and AFAB also showed elevated scores for externalizing problems, although AFAB were closer to the norm range. This finding is not conclusively in line with previous studies on youth with GD: most of them report Internalizing and Externalizing problem scores to be comparable to the problems that are "typically" reported for the sex opposite of the sex-assigned at birth or with the experienced gender (e.g. Levitan et al., 2019; Steensma et al., 2014; van der Miesen et al., 2020).

From the present results, it can be concluded that clinically referred children with a GD diagnosis from Germany show significantly elevated levels of emotional and behavioral problems, especially internalizing problems, similar to most previous research on children with GD from Europe (e.g. Aitken et al., 2016; Cohen-Kettenis et al., 2003; Steensma et al., 2014). These results are contradicting recent findings from North American studies using community based samples (Durwood et al., 2017; Kuvalanka et al., 2017; Olson et al., 2016), though not all of them (Van der Miesen et al., 2018).

The second research question of the present study was to assess the impact of the degree to which a child had already transitioned socially on psychological functioning outcomes among these children. In the present study, the social transition status (living in the preferred gender role in different everyday life areas) was not significantly associated with psychological functioning. Hence, the results are in contrast with the most prominent results so far provided by Olson et al. (2016), who argued that a complete social transition in childhood may lead to improved psychological functioning. Another recent study comparing transgender children who had completely transitioned to gender variant children who had not transitioned found that PPR, but not transition status, predicted psychological functioning (Wong et al., 2019). Likewise, our study found that, social support in general (from family and peers), but not necessarily in terms of affirming one's child gender status, plays a role for the psychological outcomes. This finding is in line with previous studies assessing similar relationships with psychological functioning (e.g. Aitken et al., 2016; de Vries et al., 2016; Levitan et al., 2019; Steensma et al., 2014; Wong et al., 2019).

Therefore, another result relates to the role of the family and support in the present analysis: next to PPR, a higher degree of problematic GFF significantly predicted higher degrees of problematic psychological functioning (especially for externalizing problems). Previous research has shown that, among transgender adolescents, a communicative and satisfactory family climate is associated with less suicidality, self-harm, depression and anxiety and more self-esteem and resilience (Katz-Wise et al., 2018), and less emotional and behavioral problems (Levitan et al., 2019). On the other hand, family support can promote self-esteem (Katz-Wise et al., 2018) and lead to higher quality of life, and less perceived burden of being transgender (Simons et al., 2013). Another recent study on transgender adolescents and their caregivers indicates that family functioning should not be assessed as a general construct, but as a more detailed pattern, as there can be differences in acceptance and rejection towards transgender adolescents between family members (Pariseau et al., 2019).

Limitations

In general, it is not possible to draw causal conclusions from the present results, since this study was conceptualized with a cross-sectional design.

Because of the small sample size, this study does not provide sufficient power for multiple hypothesis testing. However, there are various other factors that may explain the increased psychological vulnerability in children with GD. The intensity of experienced GD may lead to more emotional and behavioral problems, as well as the likelihood to transition socially, and should thus be considered as another potential confounder in future research. However, all children from this sample were referred to the Hamburg GIS for their GD, experienced more or less intense GD and a wish to transition, which is usually why their families reached out to the center.

Furthermore, the present sample was selected based on age (younger than age 12) and not on pubertal status. Onset of puberty may have had an effect on the degree to which individuals already transitioned in the present study and on their psychological functioning, especially in the significantly older sub-sample of AFAB. Future studies should therefore also consider possible relationships between puberty status and the outcome.

In consideration of the age of the children assessed in this study, no self-report was available and parental reports were used for the analyses. Parental ratings are a common method to measure children's behavior. However, parents may be limited in evaluating their children's situation compared to the child itself (Achenbach et al., 1987). Thus, it is possible that parental evaluations regarding their child's emotional and behavior problems in this sample were biased.

Caution is also warranted in generalizing the results to all children with a GD because of the small and relative unique sample. All 54 children in the analysis sample were referred to the clinic for their GD, most of them came from families with a medium or high socio-economic background and the family support of the children's gender identity was generally high. Due to the health care situation in Germany for children and adolescents with a GD diagnosis, some families go to considerable length to get access to treatment which they probably would not do if they did not generally support their child's personal situation. At the same time, the clinical guidelines of the Hamburg GIS are quite liberal and allow for individual treatment pathways. Thus, these findings might not apply to a more diverse sample of transgender children who are not supported in their gender identity or expression by parents or clinicians, or children who identify themselves on a broader gender spectrum.

Conclusion and Future Directions

This study provides additional evidence that children with a GD diagnosis from Germany experience impaired psychological functioning, which is in line with many results for children from other gender clinics worldwide.

At the same time, transitioning socially did not significantly affect the degree of emotional and behavioral problems in this population — contrary to previous studies looking at community based samples carried out by Durwood et al. (2017) and Olson et al. (2016), but in line with recent findings from a comparison of different online assessed community samples by Wong et al. (2019). Instead of social transition status itself, the individual social support was a significant predictor in the present study with regard to psychological functioning among children with GD. While further research is needed to address the possible impact of a "complete" social transition versus the degree of social transition on psychological functioning, the present study highlights the importance of both social interactions with peers and within the family for the psychological functioning in children with GD.

Clinicians can help children to deal with potential emotional and behavioral problems, and should aim to strengthen their resilience towards possible negative interactions, for example by teaching them strategies to cope with experiences of stigmatization and enhancing self-efficacy or self-esteem (Levitan et al., 2019; Steensma et al., 2013). Interventions targeted at reducing stigmatization among children and adolescents in the general population and at schools are essential, since children with a GD diagnosis often lack peer support (Cohen-Kettenis et al., 2003; Steensma et al., 2014) and transgender adolescents are more likely to be bullied at school (Toomey et al., 2010). Both peers and family should be incorporated in the psychosocial treatment of this population as early as possible, because incorporating parents' needs and feelings in the psychotherapeutic process could improve the child's situation as well. Parents themselves can be affected by their child's GD and may experience parenting stress (Kolbuck et al., 2019).

Although claims that gender affirmation through transitioning socially is beneficial during this early stage could not be supported from the present results, supporting this step may still be considered in individual cases and together with the whole family. A clinical approach that considers children to explore their identity without strict criteria, but with an open mind, may allow for a discussion of all possible outcomes and individual strategies of exploring gender identity during childhood. This may include both persisting and desisting pathways (Giordano, 2019), possibilities of living in another (non-binary) gender, as well as the possibility that there are more than two future developmental pathways (Steensma & Cohen-Kettenis, 2015).

Due to the young age of the children investigated here, it is very likely that the long-term development these children undergo regarding their gender identity and the possible problems they may experience will be largely influenced by their parents' support in terms of access to treatment. Children may be encouraged in taking a lead in discussing possible social transitions and retransitions with their parents (Ehrensaft et al., 2018; Hidalgo et al., 2013; Olson et al., 2019). This is particularly important since transitioning socially should not only be viewed as a form of treatment, but can be understood as a possibility for children to explore their own individual developmental pathways (Giordano, 2019).

The present study highlights the importance of considering every case individually, as well as making decisions about a gender transition together with the whole family, as currently suggested by the SoC 7 of the WPATH (Coleman et al., 2012). Further longitudinal studies are urgently needed to draw more specific conclusions regarding the current clinical management of GD in childhood, advantages and disadvantages of social transition, long-term developmental outcomes from childhood throughout adolescence to young adulthood, and the interactions between children and their social environments — as well as the interactions between all of these aspects.

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